pinched between tapered periphery **106** of the mandrel and sharp edge **108** on clamping ring **84** to shear the completed optical component **110** and its curved foil component **80***a* from the peripheral excess foil **80***b* to complete the process. Dam tube **96**, mold ring **98** and plug **104** are then removed from the completed product.

The present invention also permits inclusion of a waveguide or other transmitting apparatus which must be extended through the completed article. An opening for such inclusion may be formed, as also shown in FIGS. **14** and **15**, with the aid of a feedhole punch **112**. The punch is supported in the assembly and extends through cover plug **104** into contact with blank **80**, in line with a receiving hole **114** in mandrel **92**. Foam **102**, as previously described, is then placed within the cavity defined by tube **96**, mold ring **98** and cover **100**. The feedhole punch is then driven through blank **80** before curing of foam **102** is complete. After full curing of the foam, punch **112** is removed, followed by separation of formed surface **80***a* from its peripheral excess foil **80***b* and removal of the container accessories (tube **96**, mold ring **98** and plug **104**).

A typical reflecting surface was fabricated using the following process steps. A press assembly including holder **82** was heated to 45° C. All metal washer debris were removed from all recesses including that in which the feedhole punch was to travel. After all parts were cleaned, a release agent was sprayed on the taper of clamp cutter ring **108**, cylinder edge **106** and feedhole punch **112**. O-rings **90**, after being washed in acetone to maximize their frictional engaging properties, were installed in recesses **88**. Tube **96** and ring **98** also were sprayed with the release agent and assembled. Any remaining areas which might have come in contact with the foam backing further were sprayed with the release agent. The copper foil was then cut to a generally circular pattern to define a blank **80** and the blank was washed with acetone to assure good bonding to the foam. Forming piston or mandrel **92** was then checked to be in its retracted position and blank **80** was installed on top of the O-ring on clamping ring **86**. Clamping ring **84** and its O-ring were then installed atop copper blank **80** and rings **84** and **86** were secured together in any convenient manner, such as by means of nuts and bolts as depicted in FIG. **4**. A clamping force of 4,000 psi was applied between the clamping rings and the pressure was kept constant. Mandrel **92** was then slowly advanced until a pressure of 1,000 psi was applied to the blank, and then held constant. Feedhole punch **112** was placed in position and advanced to form a feedhole pilot hole in blank **80**. Dam tube **96** and ring **98** were then installed. Suitable amounts of FPH resin and catalyst 12-4H were mixed together until they became clear and foaming began. When the heat from the exothermic reaction became noticeable, the mixture was emptied into the cavity formed by dam tube **96**, and cover plug **104** was then inserted and securely affixed to ring **98**, dam **96** and blank **82**. After a period of approximately five minutes, mandrel **92** was further advanced to increase the pressure to 5,000 psi to pinch the blank between periphery **106** and cutting edge **108**. Feedhole punch **112** was then completely driven into the mandrel to complete formation of the hole through reflective base **80***a*. After an additional thirty minute period while the pressures were held, the feedhole punch was removed and the pressures on mandrel **92** and between rings **84** and **86** were released. The product was then lifted out and readied for assembly in the equipment for which it was intended.

Although the invention has been described with reference to particular embodiments thereof, it should be realized that various changes and modifications may be made therein without departing from the spirit and scope of the invention.

What is claimed is:

1. A tool useful in the method of forming precisely curved surfaces comprising:

a holder having a central space and a pair of first and second clamping surfaces placed about the space for retaining therebetween a blank at its periphery and for freely supporting the blank in the space;

a recess in at least one of said surfaces having a given depth and width and positioned equally around the space;

at least one O-ring having a thickness greater than the recess depth and smaller than the recess width and residing in the recess against a wall thereof closest to the central space of said holder so that, when said clamping surfaces are moved together with said blank positioned therebetween, said O-ring is compressed and forced to move outwardly from the central space within said recess and to frictionally drag said blank at its periphery also outwardly from the central space for stretching said blank.

2. A tool according to claim **1** further including means engageable with said blank for exerting positive and negative pressures thereon to impart the precisely curved surface thereto.

3. A tool according to claim **2** further including means contactable with said blank at its center for configuring said blank generally as a spheroidal axicon, when the exerted pressure is positive or negative.

4. A tool according to claim **1** further including a mandrel having a face contoured to define the precisely curved surface and contactable with said blank to deform said blank beyond its elastic limit and to permanently impart the contour of said mandrel face to said blank.

5. A tool according to claim **4** wherein said mandrel is positioned adjacent to and moveable toward said first clamping surfaces into contact with said blank, and further including a tapered periphery bounding said mandrel contoured face, and a cutting edge on said second clamping surface overlaying said first clamping surface and in line with said mandrel tapered periphery for pinching and shearing of said blank at its periphery after said blank has been permanently imparted with the contour of said mandrel face.

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